



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2013-0910; Special Conditions No. 25-534-SC]

Special Conditions: Airbus Model A350-900 Airplanes; Isolation or Protection of the Aircraft Electronic System Security from Unauthorized Internal Access

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for Airbus Model A350-900 airplanes. These airplanes will have a novel or unusual design feature associated with airplane electronic system security protection or isolation from unauthorized internal access. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

EFFECTIVE DATE: [Insert date 30 days after FR publication].

FOR FURTHER INFORMATION CONTACT: Varun Khanna, FAA, Airplane and Flightcrew Interface Branch, ANM-111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057-3356; telephone (425) 227-1298; facsimile (425) 227-1320.

SUPPLEMENTARY INFORMATION:

Background

On August 25, 2008, Airbus applied for a type certificate for their new Model A350-900 airplane. Later, Airbus requested, and the FAA approved, an extension to the application for FAA type certification to November 15, 2009. The Model A350-900 airplane has a conventional layout with twin wing-mounted Rolls-Royce Trent XWB engines. It features a twin-aisle, 9-abreast, economy-class layout, and accommodates side-by-side placement of LD-3 containers in the cargo compartment. The basic Model A350-900 airplane configuration accommodates 315 passengers in a standard two-class arrangement. The design cruise speed is Mach 0.85 with a maximum take-off weight of 602,000 lbs.

Contemporary transport-category airplanes have both safety-related and non-safety-related electronic system networks for many operational functions. However, electronic system network security considerations and functions have played a relatively minor role in the certification of such systems because of the isolation, protection mechanisms, and limited connectivity between the different networks.

Type Certification Basis

Under Title 14, Code of Federal Regulations (14 CFR) 21.17, Airbus must show that the Model A350-900 airplane meets the applicable provisions of 14 CFR part 25, as amended by Amendments 25-1 through 25-129.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Model A350-900 airplane because of a novel or unusual design feature, special conditions are prescribed under § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Model A350-900 airplane must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36. The FAA must issue a finding of regulatory adequacy under section 611 of Public Law 92-574, the “Noise Control Act of 1972.”

The FAA issues special conditions, as defined in 14 CFR 11.19, under § 11.38, and they become part of the type-certification basis under § 21.17(a)(2).

Novel or Unusual Design Features

The Airbus Model A350-900 airplane will incorporate the following novel or unusual design feature: an electronics network system architecture that is novel or unusual for commercial transport airplanes, and that introduces potential security risks and vulnerabilities not addressed in current regulations and airplane-level or system-level safety assessment methods.

Discussion

The Airbus Model A350-900 airplane architecture is novel or unusual for commercial transport airplanes because it allows connection to previously isolated data networks connected to systems that perform functions required for the safe operation of the airplane. This data network-and-design integration may result in security vulnerabilities from intentional or unintentional corruption of data and systems critical to the safety and maintenance of the airplane. The existing regulations and guidance material did not anticipate this type of system

architecture or electronic access to airplane systems. Furthermore, 14 CFR regulations, and current system-safety assessment policy and techniques, do not address potential security vulnerabilities, which could be exploited by unauthorized access to airplane networks and servers. Therefore, these special conditions are to ensure that the security of airplane systems and networks is not compromised by unauthorized wired or wireless internal access.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

Discussion of Comments

Notice of proposed special conditions no. 25-13-20-SC for Airbus Model A350-900 airplanes was published in the *Federal Register* on December 17, 2013 (78 FR 76252). No comments were received, and the special conditions are adopted as proposed.

Applicability

As discussed above, these special conditions are applicable to Airbus Model A350-900 airplanes. Should Airbus apply later for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on Airbus Model A350-900 airplanes. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type-certification basis for Airbus Model A350-900 airplanes.

Isolation of the Airplane Electronic System Security Protection from Unauthorized Internal Access.

1. The applicant must ensure that the design provides isolation from, or airplane electronic system security protection against, access by unauthorized sources internal to the airplane. The design must prevent inadvertent and malicious changes to, and all adverse impacts upon, airplane equipment, systems, networks, or other assets required for safe flight and operations.
2. The applicant must establish appropriate procedures to allow the operator to ensure that continued airworthiness of the airplane is maintained, including all post-type-certification modifications that may have an impact on the approved electronic system security safeguards.

Issued in Renton, Washington, on July 9, 2014.

Jeffrey E. Duven
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Aircraft Certification Service

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